Rare Plant Surveys at Chino Hills State Park

I. Introduction

Rare plant surveys were conducted in during the spring and summer months of 2001 at Chino Hills State Park as part of the California Department of Parks and Recreation Inventory, Monitoring and Assessment Program (IMAP) pilot program. The primary objective of these surveys was to locate and quantify plant populations that are considered locally or regionally sensitive or rare by the California Native Plant Society (CNPS), or that are listed by the state or federal governments as rare, threatened, or endangered; hereafter collectively referred to as species of concern. The entire park was the focus of this survey effort (approximately 12,422 acres at the time of the surveys), including Coal and Sonome Canyons, two areas that are not contiguous with the main body of the park. Previous plant survey efforts include a general plant survey conducted in 1984 as part of an initial resources inventory of the park (then only 2,237 acres) and a rare plant survey in 2000 as part of resource studies for facilities development in the Rolling M Ranch area. Although these efforts and other anecdotal observations have provided information on populations of sensitive plant species in some areas of the park, the 2001 survey was the first focused effort to document such plant populations throughout the entire park. Given that nearly 16 inches of the rainfall was recorded in the vicinity of the park between September 2000 and June 2001 (pers. comm. Mel Newman, Orange County Public Facilities and Resources Department), 2001 was a very good year to conduct these plant surveys because many native annual and perennial herb species were flowering in good numbers Rainfall records for the 2000-2001 season are presented in Appendix 1. The fieldwork was conducted by Kim Marsden, Associate State Park Resource Ecologist, and Melanie Howe, Environmental Services Intern, both from the Southern Service Center and both formally trained in botanical science and especially familiar with the flora of southern California.

II. Methods

A). Literature review

Prior to beginning the 2001 fieldwork, a review of existing information contained in the California Natural Diversity Database (CNDDB 1999), the CNPS *Inventory of Rare and Endangered Vascular Plants of California* (2001), the Southern Service Center files, and other pertinent sources was conducted. This search revealed that, in addition to the sensitive species known to occur within the park (*i.e.*, Catalina mariposa lily (*Calochortus catalinae*), Coulter's matilija poppy (*Romneya coulteri*), and multi-stemmed dudleya (*Dudleya multicaulis*)), several others have the potential to occur based on the known range and habitat associations of these species. These species comprised the list of taxa for which to conduct surveys in 2001 (Table 1.)

Table 1. List of sensitive plant species to survey for in 2001 compiled from information in Southern Service Center files, CNDDB Rarefind (1999), and California Native Plant Society's *Inventory of Rare and Endangered Plant of California* (2001). Species marked with an asterisk (*) have been previously documented within the park, those marked with a cross (†) have been reported from nearby the park and are likely to occur within the park. Status and habitat codes are explained in Appendix II.

SCIENTIFIC NAME (COMMON NAME) FAMILY	LIST[1]	ELEV	BLOOM PERIOD	LIFE FORM	HABITAT[2]	NOTES
Astragalus brauntonii † (Braunton's milk-vetch) Fabaceae	1B/ 3-3-3 FE	< 450 m	March - July	perennial	CCfs, Chprl, CoScr, VFGrs	recent burns, disturbed areas
Atriplex coulteri (Coulter's saltbush) Chenopodiaceae	1B/ 2-2-2	< 50 m	March - October	perennial	CoScr, VFGrs	alkaline or clay, open sites
Brodiaea filifolia (thread-leaved brodiaea) Liliaceae	1B/ 3-3-3 CE/FE	60 - 300 m	March - June	perennial (bulb)	CoScr, CmWld, VFGrs (VnPls - Jepson)	clay
Calochortus catalinae * (Catalina mariposa lily) Liliaceae	4/ 1-2-3	< 700 m	February - May	perennial (bulb)	Chprl, CmWld, CoScr, VFGrs	heavy soil, VGrs and shrublands
Calochortus plummerae (Plummer's mariposa lily) Liliaceae	1B/2-2-3 FSC	< 680 m	May - July	perennial (bulb)	Chprl, CoScr, VFGrs	dry, rocky, open slopes
Cupressus forbesii (Tecate cypress) Cupressaceae	1B/3-3-2 FSC	255 - 1500 m	N/A	tree (evergreen)	Chprl	Known from fewer than five occurrences in CA.
Dodecahema leptoceras (slender-horned spineflower) Polygonaceae	1B /3-3-3 CE/FE	200- 760 m	April - June	annual	Chprl, CoScr	alluvial fan (sand) in CoScr
Dudleya multicaulis * (many-stemmed dudleya) Crassulaceae	1B/1-2-3 FSC	15 - 790 m	May - July	perennial	Chprl, CoScr, VFGrs	heavy soils, often clay
Eriastrum densifolium ssp. *sanctorum* (Santa Ana River woollystar) Polemoniaceae	1B/ 3-3-3 CE/FE	150 - 610 m	June - August	perennial	Chprl, CoScr	alluvial fan (gravelly river beds)
Centromadia pungens spp. *laevis* (smooth tarplant) Asteraceae	1B/ 2-3-3 FSC	< 480 m	April - September	annual	ChScr, RpWld, VFGrs	Alkaline flats
Lepechinia cardiophylla (heart-leaved pitcher sage) Lamiaceae	1B/ 3-2-2 FSC	555 - 1370 m	April - July	perennial shrub	Chprl, CmWld	Known from fewer than 10 occurrences in CA.
Lepidium virginicum var. *robinsonii* (Robinson's peppergrass) Brassicaceae	1B/ 3-2-2	< 500 m	January - July	annual	Chprl, CoScr	dry soils, shrublands
Ribes divaricatum var. *parishii* (Parish's gooseberry) Grossulariaceae	1B/ 3-3-3 FSC	65 - 100 m	February - April	perennial shrub	RpWld	possibly extinct (moist woodlands)
Romneya coulteri * (Coulter's matilija poppy) Papaveraceae	4/ 1-2-3	< 1200 m	March - July	perennial (rhizhimatous)	Chprl, CoScr	often in burned areas; dry washes

[1, 2] California Native Plant Society's *Inventory of Rare and Endangered Plant of California* (2001).

B). Survey procedure

Because Chino Hills State Park encompasses approximately 12,452 acres and the terrain in many areas is quite rugged, surveys for the species of concern were conducted both by vehicle and on foot. Surveys methods consisted of searching areas while driving all travelable roads, searching difficult to access areas with binoculars, and by walking meandering transects through habitats in which the species of concern are likely to occur. Particular attention was given to areas of previously documented sensitive plant occurrences or areas of suitable habitat as determined by observation or predicted based on USDA soils maps. Surveys were conducted from late March through early July of 2001 to coincide with spring and summer flowering periods for the species of concern. Incidental sightings that occurred beyond July were also recorded. When species of concern were located, their occurrence was recorded as either an area polygon containing many plants, or a point for a single plant or a few plants, using the Trimble GeoExplorer® 3 Geographic Positioning System (GPS) unit. Each occurrence was also assigned an identifying number and habitat and demographic information was recorded for the occurrence using the standardized field data form (Appendix III). This information was entered into the botanical database for Chino Hills State Park that is maintained at the Southern Service Center and ultimately transferred into the IMAP database. The completed field data sheets are included in Appendix IV. A California Natural Diversity Database field form was completed and submitted for all species of concern located during this survey effort (Appendix V). After compiling all the field data, a rare plant distribution map was generated using Geographic Information System (GIS) technology (Figure 1). A list of equipment used during field surveys is included as Appendix VI.

III. Findings

Table 2 lists the species of concern that were observed within the park in 2001 and their general locations (see Figure 1 for species distributions). Of the six species of concern documented within the park in 2001, five were located in the Coal Canyon acquisition area: Braunton's milkvetch, many-stemmed dudleya, Plummer's mariposa lily, Coulter's matilija poppy, and Tecate cypress. One Coulter's matilija poppy colony was recorded in the main body of the park, and two populations of many-stemmed dudleya was found in the park in 2002 while conducting other surveys. The sixth species of concern, Catalina mariposa lily, was recorded in several areas throughout the main body of the park and in Sonome Canyon. None of the other species of concern listed in Table 1 were observed during 2001 surveys; several of them have very limited distributions/habitat requirements and some have not been observed growing in the wild for many years (CNDDB 1999, CNPS 2001).

Two additional native plant species were noted during these rare plant surveys; they have no official listing status but are of interest to the park. These species include chaparral pea (*Pickeringia montana*), which occurs along the North Ridge Trail in the main body of the park, and purple needlegrass (*Nassella pulchra*), which occurs as grasslands or

Table 2. Previous sightings, documented occurrences, and current status of plant species of concern at Chino Hills State Park, San Bernardino and Orange Counties, California. Although not included in Table 1, purple needlegrass and chaparral pea are included here. See text for explanation.

SPECIES	PREVIOUS OBSERVATIONS AT CHINO HILLS STATE PARK	STATUS IN 2001
Braunton's milkvetch (*Astralagus brauntonii*)	Along the west ridge road in Coal Canyon (CNDDB Element Occurrence #4)	Extant: one plant found in the alluvial scrub in Coal Canyon.
Catalina mariposa lily (*Calochortus catalinae*)	DPR 2000 surveys; Chino Hills Botanical Database EONDX number: 4371. Other undocumented incidental sightings.	Extant: in several locations within the main section of the park and in Sonome Canyon.
Coulter's matilija poppy (*Romneya coulteri*)	Incidental sightings at Coal Canyon not documented.	Extant: in several locations in Coal Canyon and in one location in the main section of the park in Lower Aliso Canyon.
Intermediate mariposa lily (*Calochortus weedii* var. *intermedius*)	None previous to 2001.	Extant in low numbers near the park boundary on the west ridge road in Coal Canyon.
Many-stemmed dudleya (*Dudleya multicaulis*)	DPR 1984 rare plant survey; located on ridge east of Rolling M Ranch in rocky outcrop. Coal Canyon (CNDDB element occurrence #38)	Extant in the main section of the park in Lower Aliso Canyon and in Coal Canyon along the west ridge road. 1984 record not relocated in 2001.
Tecate cypress (*Cupressus forbesii*)	Incidental sightings at Coal Canyon not documented.	Occurrence in Coal Canyon near the DFG boundary.
Purple needlegrass *Nassella pulchra*	DPR 2000 surveys Chino Hills Botanical Database EONDX numbers: 4374, 4375, 4376, 4379, 4380, 4400.	Several small to large areas within the main body of the park.
Chaparral pea (*Pickeringia montana*)	Incidental sightings not documented.	Extant in low numbers along North Ridge Trail in the main section of the park.

grassland patches in a mosaic with the non-native annual grassland community. The chaparral pea is of interest because this species is relatively uncommon and the population in the park is very disjunct from other known populations in southern California. The purple needlegrass grassland community is of interest to the park because this community type is becoming less common in southern California and is considered to be a regionally sensitive community type.

IV. Data Management

Software packages used in the data analysis and production of this report include Microsoft (MS) Word 2000, and ArcView GIS version 3.2. Digital versions of the report, graphics, GIS data (ArcView shape files), data files and data forms are included

Figure 1. Map of the distribution of plant species of concern at Chino Hills State Park in 2001.

on a CD in a pocket following the appendices. See Appendix VII for the list of files included with this report.

V. Future Monitoring

This effort should be repeated every three to five years. Surveys should be conducted during years of at least average rainfall, but better repeated in years of above average rainfall when it is highly likely that plant populations that have been dormant or have gone unnoticed because they occur in low numbers would be actively growing and flowering and therefore apparent to surveyors. An additional effort should be spent on surveying more remote areas of the park that were not extensively surveyed during 2001 (Figure 2), especially in above average rainfall years. A California Natural Diversity Database form (Appendix VI) should be completed and submitted to the California Department of Fish and Game for all populations not previously documented in the park.

VI. Contact Information

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INSERT FIGURE 2 HERE

VII. References

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